

Site:	_____
Break:	2.8
Other:	_____



100 Atlanta Technology Center, Suite 120, 1575 Northside Drive, NW,
Atlanta, GA 30318 • (404) 352-4147 • FAX (404) 352-0659

9891

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-7367

MEMORANDUM

TO: Diane Jackson, OSC
EPA Region IV

FROM: Gregory L. Shaia
TAT Region IV

THRU: Conley B. Phifer *CBP*
TATL, Region IV

SUBJECT: Prairie/Starkville Ether Sites; Site Investigation
and Removal
Prairie, Monroe County and Starkville, Oktibbeha
County, Mississippi
TDD #04-9005-13-3240
04-9005-13A-3297
04-9005-13B-3335
TAT-04-F-04102

DATE: 17 July 1990

SITUATION

This report is prepared to satisfy the requirements of Technical Direction Document (TDD) numbers 04-9005-08 and 04-9005-13, issued to the Roy F. Weston, Inc., Technical Assistance Team (TAT), Memphis Satellite Office, by Region IV of the United States Environmental Protection Agency (EPA).

The general requirements of the TDDs, issued by OSC Diane Jackson, were to perform site investigations, followed by the monitoring of removals, at historic ether sites in the Mississippi counties of Oktibbeha and Monroe (Figures 1 and 2 - Location Maps). The site in Monroe County is a former medical supply facility on a former World War II ordinance manufacturing facility, and the site in Oktibbeha County is a former civil defense storage facility located in Starkville's City Hall.

Roy F. Weston, Inc.

MAJOR PROGRAMS DIVISION

In Association with ICF Technology, Inc., C.C. Johnson & Malhotra, P.C., Resource Applications, Inc.,
and R.E. Sarriera Associates

SUMMARY

On 07 May 1990, OSC Diane Jackson contacted TAT tasking accompaniment in investigating two historic ether sites in Starkville, Oktibbeha County and Prairie, Monroe County, Mississippi. The OSC directed that TAT meet her and an Emergency Response Clean-up Service (ERCS) contractor representative on 10 May 1990, to visit the sites with Mississippi Department of Environmental Quality (MSDEQ) official Bob Rogers (Attachment D - Table of Witnesses).

On 10 May 1990, OSC Jackson, TAT member G. L. Shaia, and O. H. Materials (OHM) Response Manager, Charlie Hunt met with Bob Rogers and Mississippi Emergency Management Agency (MEMA) representatives Leon Shaifer and W. H. Perkins, Jr. to characterize both sites. Verification was made of the amounts of ether at both sites and tentative plans for destroying the material were established. Three quarters (3/4) of a case equaling seventy two (72) quarter pound cans was found at the Starkville location and thirty one (31) cases equaling two thousand nine hundred seventy six (2,976) quarter pound cans were found at the Prairie location.

Detonation sites for both locations were chosen by the OSC and OHM Response Manager, after consultation with state and local officials. Refer to Figure 3 for detonation site locations and proximity to the location of ether storage. Detonation was scheduled for 15 May 1990.

On 14 May 1990, all concerned parties mobilized to Starkville, Mississippi. At 0500 Central Daylight Time (CDT), on 15 May 1990, involved personnel met on-site to begin the day's events. At 0800 CDT, operations were shifted to Prairie, Mississippi to conclude detonation activities. The ether was taken from the storage locations to the detonation sites utilizing a bomb trailer mobilized to the site by OHM. The moves were made under escort by MEMA and MSDEQ at the Prairie location and by MEMA, MSDEQ and local fire and police accompaniment at the Starkville location. By 1800 CDT, all thirty-one and three quarters (31 3/4) cases of ether had been detonated in six (6) explosions, using a total of approximately one hundred (100) pounds of explosive.

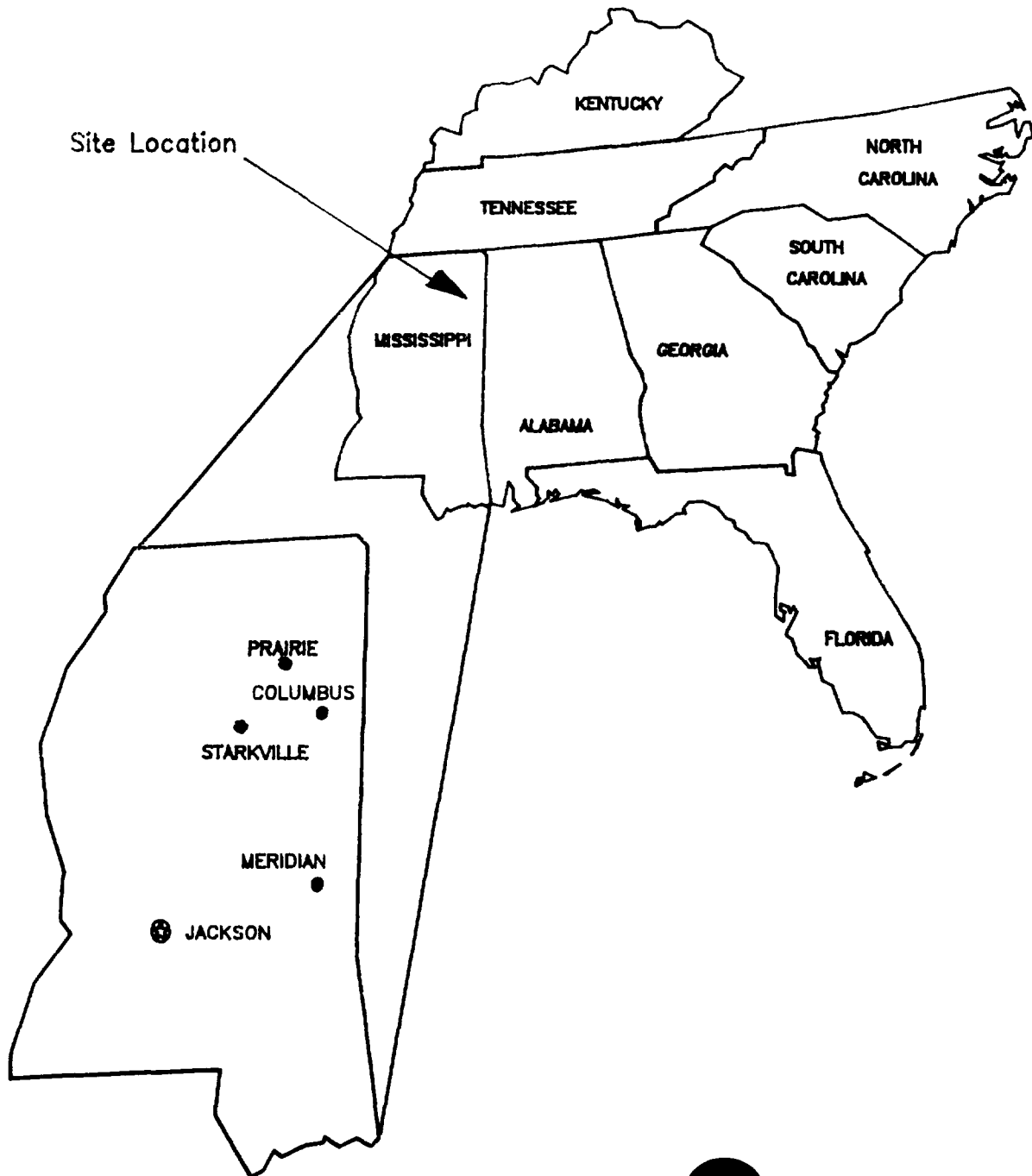
CONCLUSION

The ether detonations were declared complete by the OHM Response Manager and all debris was removed from the sites. Documentation of the removal was recorded using both video and photo cameras (Attachment B - Photographs), as well as a written log (see Attachment C - Log Notes). Cost tracking was performed by OHM and a Pollution Report outlining the proceedings, was sent on 05 June 1990 (Attachment F - Pollution Report).

ATTACHMENTS

Figures 1 - 3 Maps & Sketches
Attachment A - Site Assessment Referral Form
B - Photographs
C - Log Notes
D - Table of Witnesses
E - Safety Plan
F - Pollution Report

Figure 1
General Location Map



E.P.A. Region IV

Weston T.A.T. Activity Location

TDD# 04-9005-08-3231 / 04-9005-13-3240

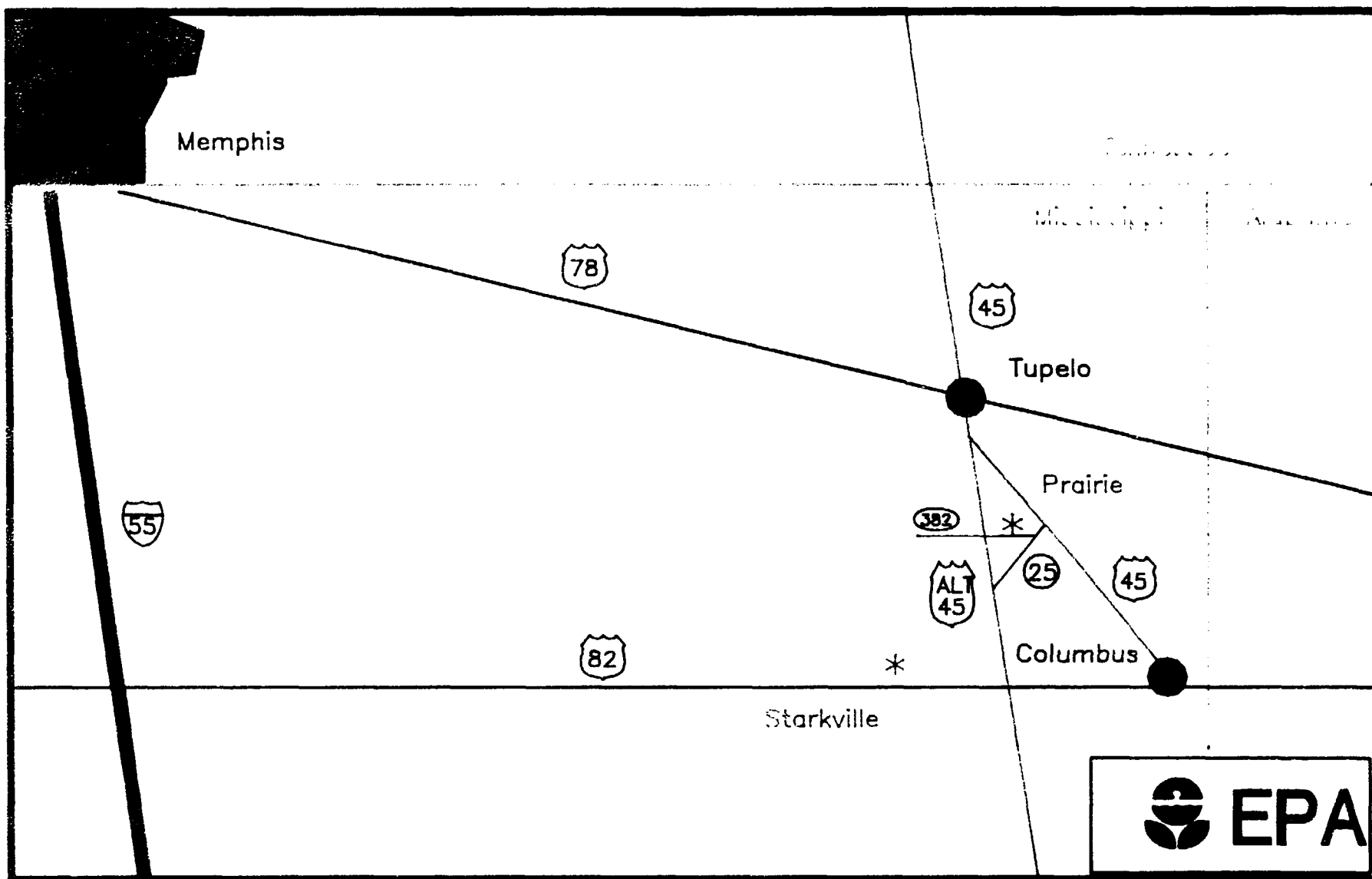
Starkville / Prairie Ether Sites

Starkville, Oktibbeha Co. / Prairie, Monroe Co., Mississippi



Figure 2
Site Location Map

0007
28



ROY F. WESTON Region IV TAT

ACTIVITY DESCRIPTION: Site Location Map

Not to scale

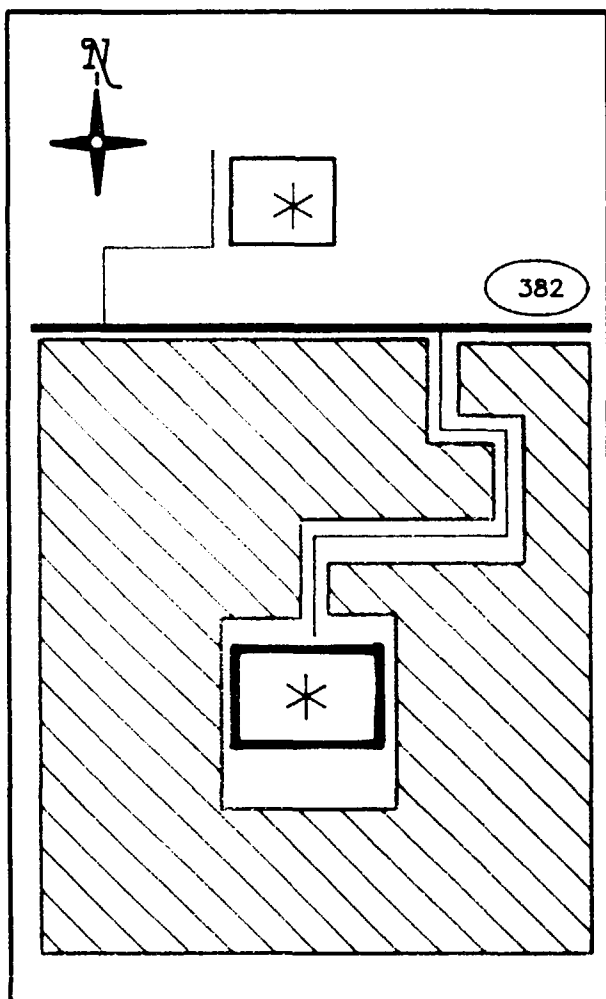
Starkville/Prairie Ether Sites
SITE: Starkville, Oktobbeha Co., / Prairie, Monroe Co., MS

TDD NO.: 04-9005-08-3231/04-9005-13-3240

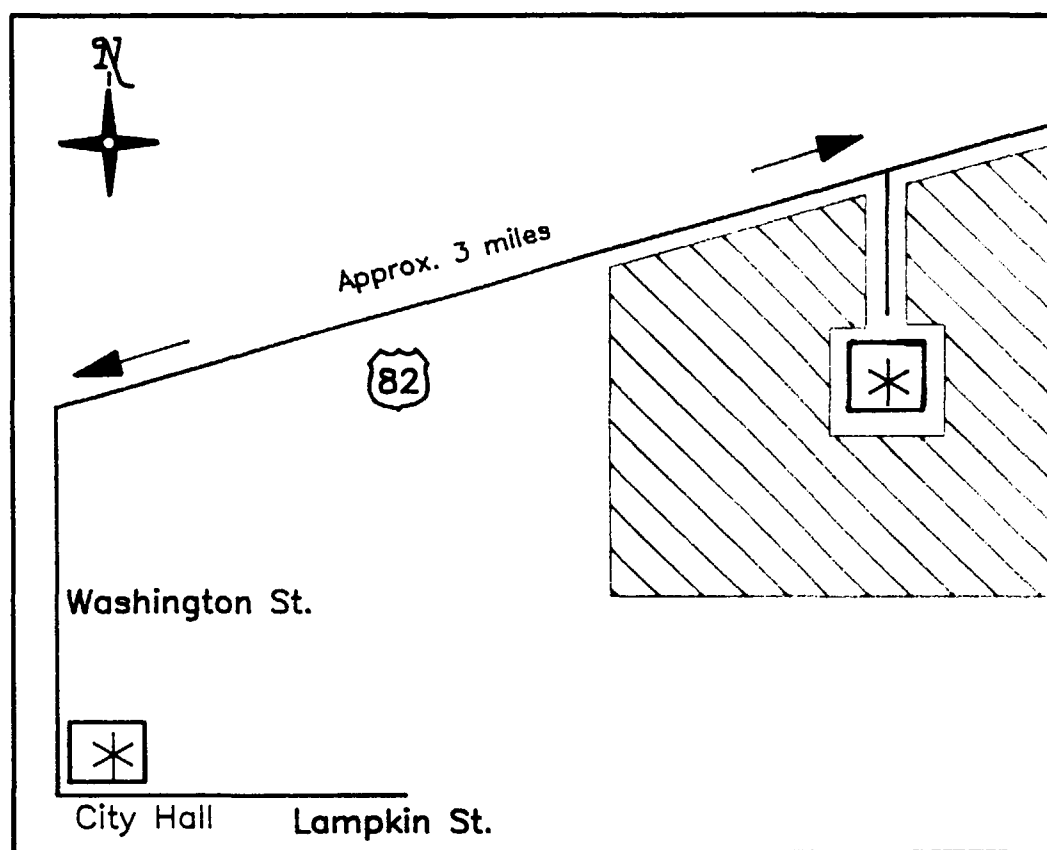
DATE: 15 May 1990

Figure 3
Site Diagram

Prairie Site



Starkville Site



- * Detonation Site
- * Location of Stored Ether



ROY F. WESTON Region IV TAT

ACTIVITY DESCRIPTION: Site Location Map

Not to scale

Starkville/Prairie Ether Sites
SITE: Starkville, Oktibbeha Co., / Prairie, Monroe Co., MS

TDD NO.: 04-9005-08-3231/04-9005-13-3240

DATE: 15 May 1990

ATTACHMENT A
Site Assessment Referral Form

2 8 0011

ATTACHMENT B

Photographs



PHOTO # 1

Official Environmental Protection Agency Photograph

Subject: Ether at Starkville (Ether is in case
in center of picture, by chairs).

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / AM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office



PHOTO # 2

Official Environmental Protection Agency Photograph

Subject: Bomb trailer used to transport ether.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / AM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office

2
8
0012

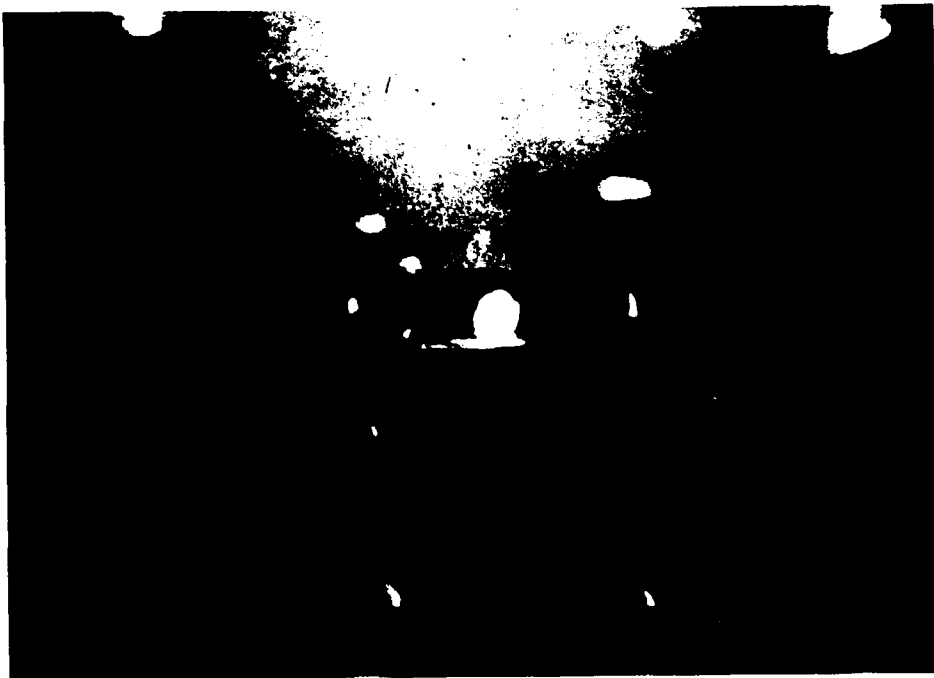


PHOTO # 3

Official Environmental Protection Agency Photograph

Subject: Starkville ether detonation at dawn.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / AM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office

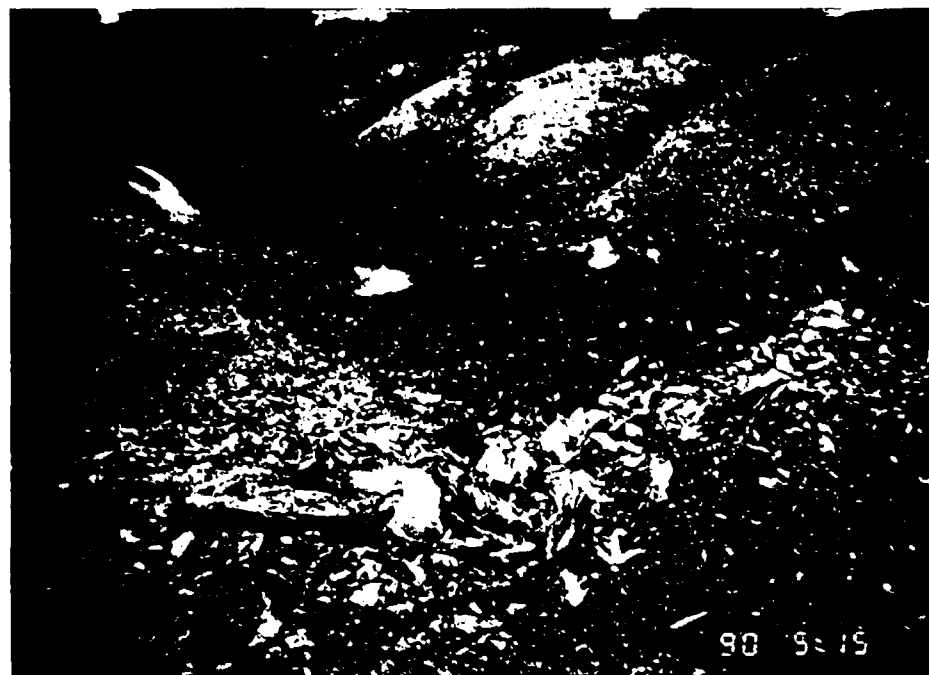


PHOTO # 4

Official Environmental Protection Agency Photograph

Subject: Aftermath of Starkville detonation.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / AM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office

280013

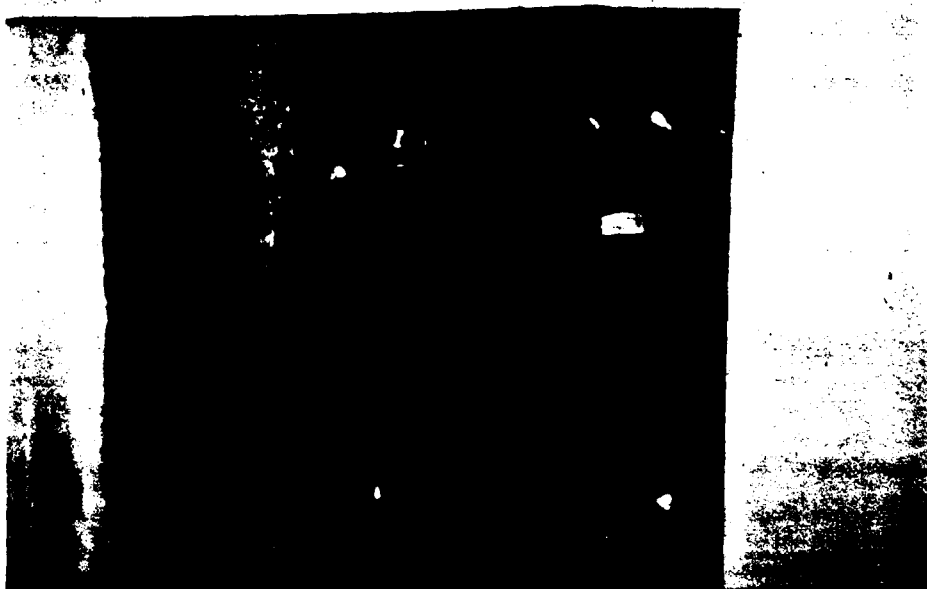


PHOTO # 5

Official Environmental Protection Agency Photograph

Subject: Ether at Prairie (on pallets).

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / AM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office



PHOTO # 6

Official Environmental Protection Agency Photograph

Subject: Loading ether in bomb trailer.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / PM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office

28 0014



PHOTO # 7

Official Environmental Protection Agency Photograph

Subject: Staging ether for detonation.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / PM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office



PHOTO # 8

Official Environmental Protection Agency Photograph

Subject: Mixing explosives.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / PM

Photographer: Bob Rogers

Witness: G.L. Shaia

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office

28 0015

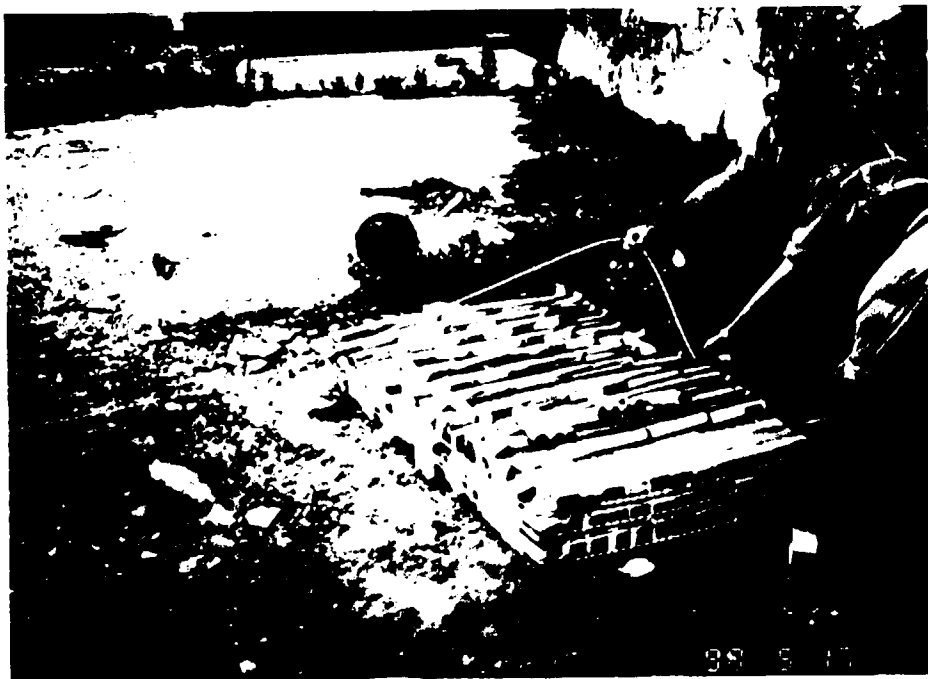


PHOTO # 9

Official Environmental Protection Agency Photograph

Subject: Rigging explosives to ether for detonation.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / PM

Photographer: Bob Rogers

Witness: G.L. Shaia

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office



PHOTO # 10

Official Environmental Protection Agency Photograph

Subject: One of five ether detonations at Prairie.

Location: Starkville/Prairie Ether Sites
Mississippi

TDD#: 04-9005-08 and 13

Date/Time: 15 May 1990 / PM

Photographer: G.L. Shaia

Witness: Diane Jackson

Film: 35 mm / 100 ASA

Location of Negative: Region 41 - Memphis TAT Office

2
8
0016

ATTACHMENT C

Log Notes

TDD 04-9005-08/04-9005-13

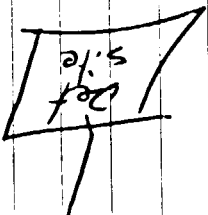
07 May 1990

D Jackson OSC Reg 14, tasks assigned to Civil Defense Eater-Sites in Miss. 33pt. TAT 20:11 meet OSC, OX materials Ray-Greenwood and MSD NR's Bob Rogers in Jackson, MS on 10 May 90 at 0930. OSC is still gathering information from Rogers. This may include verification, location and date gathering only. Arac (Lam) Hudgins is seeking the support of Army Explosive Ordnance Division (EOD). Sketchy details include 31 cases at 50 lbs each in Rogers Prairie and more at old CD depot in Starkville. Gregory Stark

10 May 1990

TAT and OSC meet with Bob Rogers and Charlie Hunt (OTM). Inspection of Prairie site: 31 cases each containing 96 1/4 lb bottles of medical ether. Detonation site chosen in empty field nearby (see map). Property is site of WWII ordnance manufacturing facility now leased by Miss. 33pt. State University as an agricultural experimental station (Adam General Services Administration (GSA). Detonations will be scheduled for Tuesday, the 15th of May. Details of more will be cleared up Friday or Monday. GCS Inspection of Starkville etc. TAT OSC
GCS MS DNR

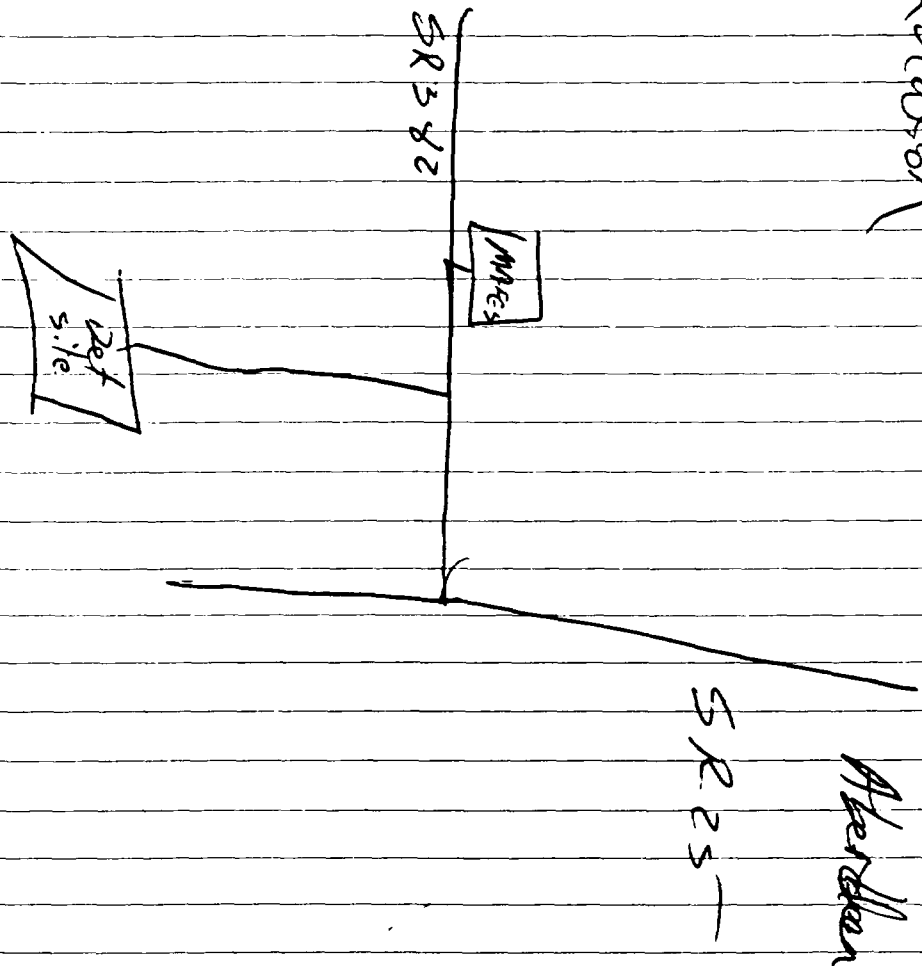
This site is the former location of a GSA medical supply facility. The ether was manufactured in 1962 (leading) and has apparently been there since. The medical supply facility was deactivated. Inspection of Skutumpah: OSC, TAT, ORMA and MSDCO (former MSDAR) met with Larry Bell of the city of Skutumpah, Leon Skelton of Mississippi EMA and numerous city officials concerning 3/4 of a case (1/2 cans 1/4 1/5 each) of ether stored in city hall. This ether will be packaged, two more 15th May at sunrise (more on foot) before the city takes. A decontamination site approx 3 miles out of town has been chosen. (see map 2)



OSC, ORMA and TAT will mobilize on Monday 14 May to Skutumpah to begin removal. Ends 18 May 5 AM.

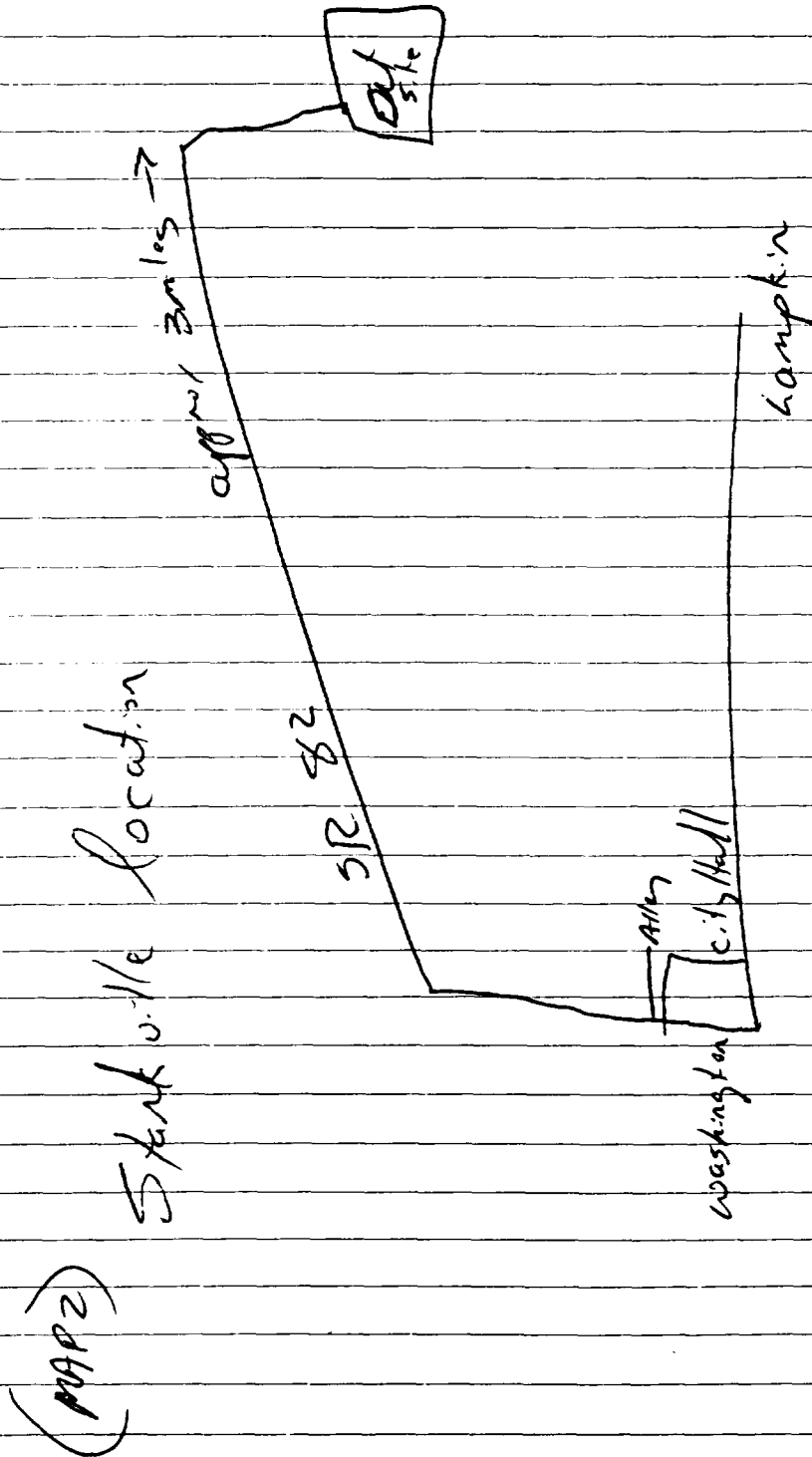
Gregory J. Stewart

(map 1) Freire location



from the ether
(label info)
there since
it was deactivated
OSC, TAT, OTH and
met with
Starkville SP,
api EMA and
concerning
1/4 bench
This other
man 15th May
before the
5th approx
as chosen.

mobile on
ille to begin
AP.
draw



No circuit

Washington [C. B. Hall]

Lampkin

~~No entries this Reg. [Signature]~~

15 May 90

0500 0A-site - Starkville. OHM already on site.

Bomb trailer is prepared and ready to load.

Commence loading of 34 cases of other.

0505 Loading complete. Depart for defonation

site, under escort convoy.

0515 Arrive at defonation site. Begin prep

site and unloading of other.

0618 Defonation of other = 34 cases = 72 cans

0650 Site cleared-up. Depart for private site.

0700 Arrive private site. Begin other

defonation procedures.

1800 31 cases of other = 2976 cans have been

moved to the defonation site and defonated.

Since commencement. A total of five

defonations using an average of 6 cans

per explosion were accomplished. Documented

by several video cameras and photo cameras

were used. OHM, TAT and CPA will

demob in morning. OHM will clean debris

from site in morning before demob.

Gregory, Steven

ATTACHMENT D
Table of Witnesses

Table of Witnesses

Diane Jackson, OSC
Environmental Protection Agency
Region IV - Emergency Response Branch
345 Courtland Street N.E.
Atlanta, Georgia 30365
404/347-3931

Gregory L. Shaia
Roy F. Weston Inc./Major Programs Division
3003 Airways Blvd. Suite 717
Memphis, Tennessee 38131
901/398-6071

Bob Rogers, Chief, Emergency Services
Mississippi Department of Environmental Quality
Bureau of Pollution Control
P.O. Box 10385
Jackson, Mississippi 39289
601/961-5171

Leon K. Shaifer, Director, Plans and Operations Division
William H. "Dusty" Perkins, Jr., Director of Public Relations
Mississippi Emergency Management Agency
P.O. Box 4501/1410 Riverside Drive
Jackson, Mississippi 39296
601/352-9100

Charlie Hunt, Supervisor
OH Materials Corporation
1090 Cinclare Drive
Port Allen, Louisiana 70767
504/389-9596

Richard R. Evans, Animal Scientist
Praire Research Unit
Mississippi Agricultural and Forestry Experiment Station
Mississippi State University
P.O. Box 124
Praire Mississippi 39756
601/369-4426

Larry Bell
Civil Defense Director
City Hall
101 E. Lampkin Street
Starkville, Mississippi 39759
601/323-8012

Butch Lee
State of Mississippi Fire Academy
RT 10 Box 295
Jackson, Mississippi 39208
601/932-2444

ATTACHMENT E
Site Safety Plan

Note: This tasking encompasses two site locations.
Site 1 — Starkville, Oktibbeha Co, MS
Site 2 — Prairie, Monroe Co, MS

2 8

0027

WESTON SPER DIVISION
HAZARDOUS WASTE SITE INVESTIGATION AND EMERGENCY RESPONSE
HEALTH AND SAFETY PLAN

U.S. EPA CONTACT: Diane Jackson
Date of Inspection: 5-14-90 Time: _____ TDD No. 04-4005-13
Original Safety Plan: Yes X No _____ PCS No. 3.240
Admendment/Modification No. _____

SITE SAFETY COORDINATOR: Gregory L. Shaia

Site Name: Starkville / Prairie ether Removal

Site Address: Street No. City Hall — Lampkin St
City Starkville
County Oktibbeha
State Mississippi Zip Code _____

Site Contact: Larry Bell — CD Phone 601-323-8012

Directions to Site: (Attach Map) Starkville is located approx 22 mile west of Columbus on US 82. US 82 into Starkville to Washington Ave. South to Lampkin City Hall is on the corner of Washington and Lampkin.

SITE HISTORY: 3/4 of a case (72 cans 1/4 lb each) of ether were left in a CD depot located in a storage room at city hall.

INCIDENT DESCRIPTION

TYPE: A) Spill _____ Air Release _____ Fire _____ HW Site X Other _____
B) Assessment _____ Sampling _____ Emergency Response X
Clean-up/Removal X Other (specify) _____
C) Urban/Residential X Commercial X Industrial _____
Rural _____ Remote _____

PERSONNEL PHYSICAL SAFETY HAZARDS:

Heat ✓ Cold _____ Noise _____ Underground Utilities _____
Overhead Utilities _____ Heavy Equipment ✓ Slip, Trip, Fall ✓
Confined Spaces _____ Pressurized Airlines _____ Explosive ✓
Ladders _____ Scaffolds _____ Unguarded Openings-Wall, Floor _____
Liquids in Open Containers, Ponds/Lagoons _____
Other _____

(2)

Site Address: Street No. SR 382
 City Maine
 County Monroe
 State ME Zip Code _____

Site Contact: Richard Evans Phone 601 369 4426

Directions to Site: (Attach Map) From Skunkville proceed North
on Alt U.S. 45 approx 26 miles to SR 382. Proceed on SR 382
approx 2 miles to site on north side of highway.

SITE HISTORY: Facility is former site of GSA medical supply center.
Enter dated 1962 was found on site. 31 cases 96 1/4 lbs can ea

INCIDENT DESCRIPTION

TYPE: A) Spill _____ Air Release _____ Fire _____ HW Site X Other _____
 B) Assessment _____ Sampling _____ Emergency Response X
 Clean-up/Removal X Other (specify) _____
 C) Urban/Residential _____ Commercial _____ Industrial _____
 Rural _____ Remote X

PERSONNEL PHYSICAL SAFETY HAZARDS:

Heat ✓ Cold _____ Noise _____ Underground Utilities _____
 Overhead Utilities _____ Heavy Equipment ✓ Slip, Trip, Fall ✓
 Confined Spaces _____ Pressurized Airlines _____ Explosive ✓
 Ladders _____ Scaffolds _____ Unguarded Openings-Wall, Floor _____
 Liquids in Open Containers, Ponds/Lagoons _____
 Other _____

CHEMICAL CONTAMINANTS OF CONCERN

<u>CONTAMINANT</u>	<u>TLV</u> <u>PEL</u>	<u>IDLH</u>	<u>PHYSICAL</u> <u>CHARACTERISTICS</u>	<u>ROUTE OF</u> <u>EXPOSURE</u>	<u>SYMPTOMS OF</u> <u>ACUTE EXPOSURE</u>	<u>FIRST</u> <u>AID</u>	<u>INSTRUMENTS</u> <u>TO DETECT</u>
Ether — See attached Chris Data							

Description of Decontamination To Be Used: _____

TASK TO BE PERFORMED	ANTIC. LEVEL OF PROTECT.	COVERALL	GLOVE IN/OUT.	AIR PU RESPIR CART/C.
contractor monitoring of ether detonation	D		safety shoes, safety glasses hard hat.	

Anticipated Monitoring

Radiation Meter [] CGI [] HNU [] _____ eV Probe OVA []

Detector Tube [] _____ Other _____

EMERGENCY PHONE NUMBERS: LOCATION PHONE NOTIFIED

FIRE 601-323-2962

POLICE 601-323-4134

AMBULANCE 601-323-4344

HOSPITAL OKf. bheha County Hosp 601-3234320
Hospital Rd, Starkville MS 39759

CHEMICAL TRAUMA CAPABILITY? _____

DIRECTIONS TO HOSPITAL: (ATTACH MAP) RTE. VERIFIED BY GCS DATE 5/10/90

Jackson St North to Hosp Rd. - left to Hosp.

ADDITIONAL EMERGENCY PHONE CONTACTS:

CHEMTREC	(800) 424-9300
TSCA HOTLINE	(800) 424-9065, (202) 544-1404
ATSDR	(DAY) (404) 329-2888
	(NIGHT) (404) 566-7777
AT & F (EXPLOSIVES INFO.)	(800) 424-9555
NATIONAL RESPONSE CENTER	(800) 424-8802
WESTON MEDICAL EMERGENCY SERVICE	(513) 421-3063
WESTON 24 HOUR HOTLINE	(215) 524-1925, 1926
PESTICIDE INFORMATION SERVICE	(800) 845-7633
EPA ERT EMERGENCY	(201) 321-6660
RCRA HOTLINE	(800) 424-9346
CMA CHEMICAL REFERRAL CENTER	(800) 262-8200
NATIONAL POISON CONTROL CENTER	(800) 942-5969
U.S. DOT	(202) 366-0656 (Day only)

Prepared by: G.L. Shara Date: 5/11/90

Pre-Response Approval by: KMK Date: 5/11/90

Site ②

EMERGENCY PHONE NUMBERS:	LOCATION	PHONE	NOTIFIED
FIRE	Abbeville, MS	601-369-6454	
POLICE	"	601-369-2011	
AMBULANCE	"	601-369-9393	
HOSPITAL	"	601-360-2455	

CHEMICAL TRAUMA CAPABILITY? _____

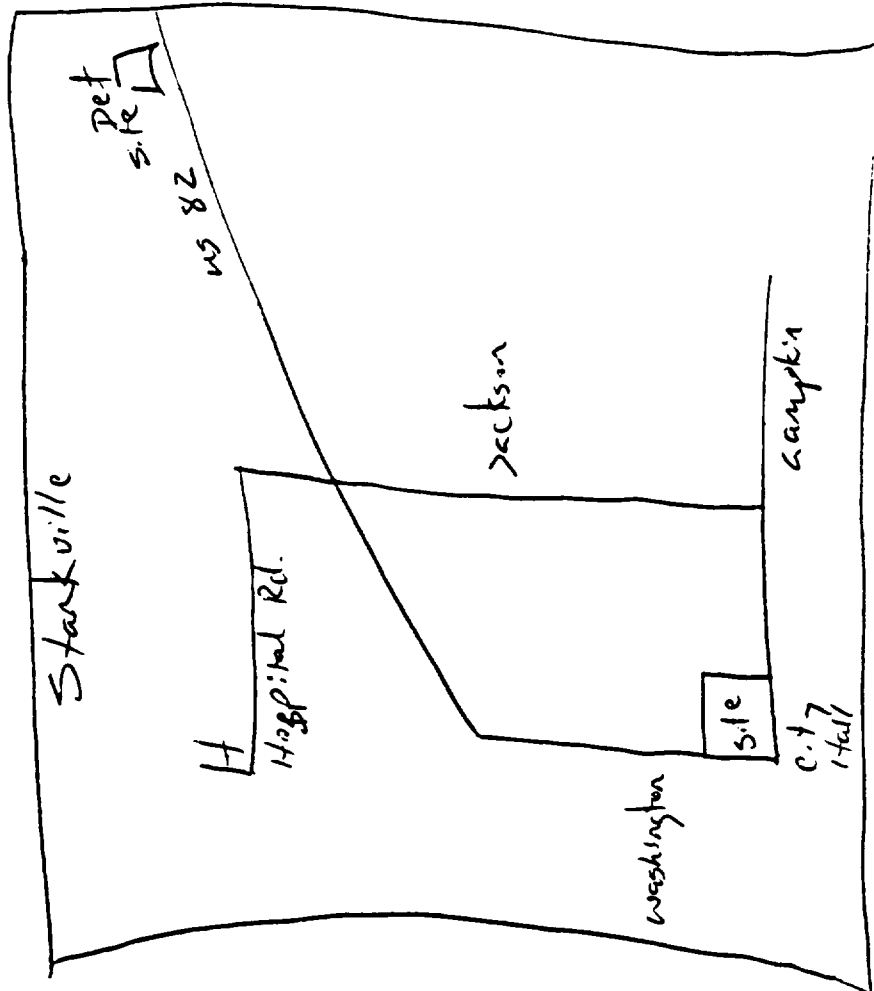
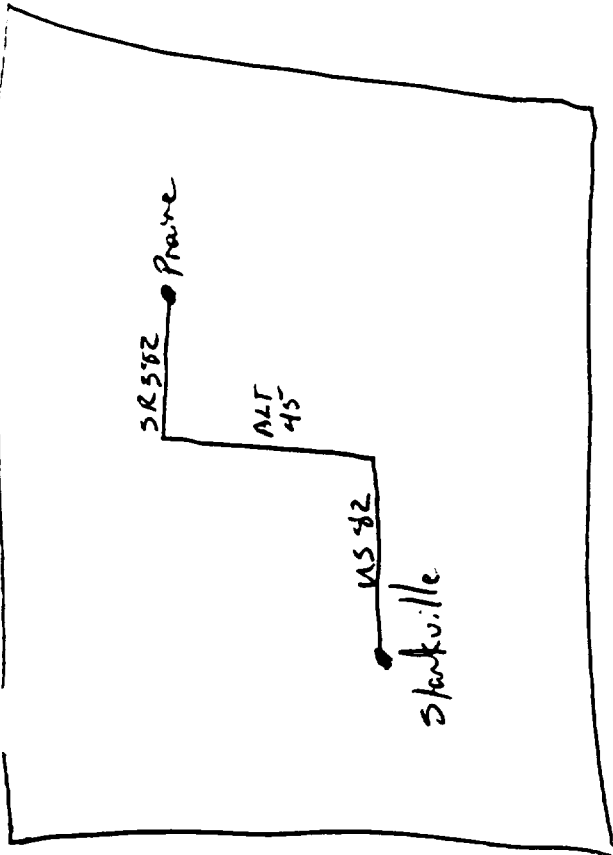
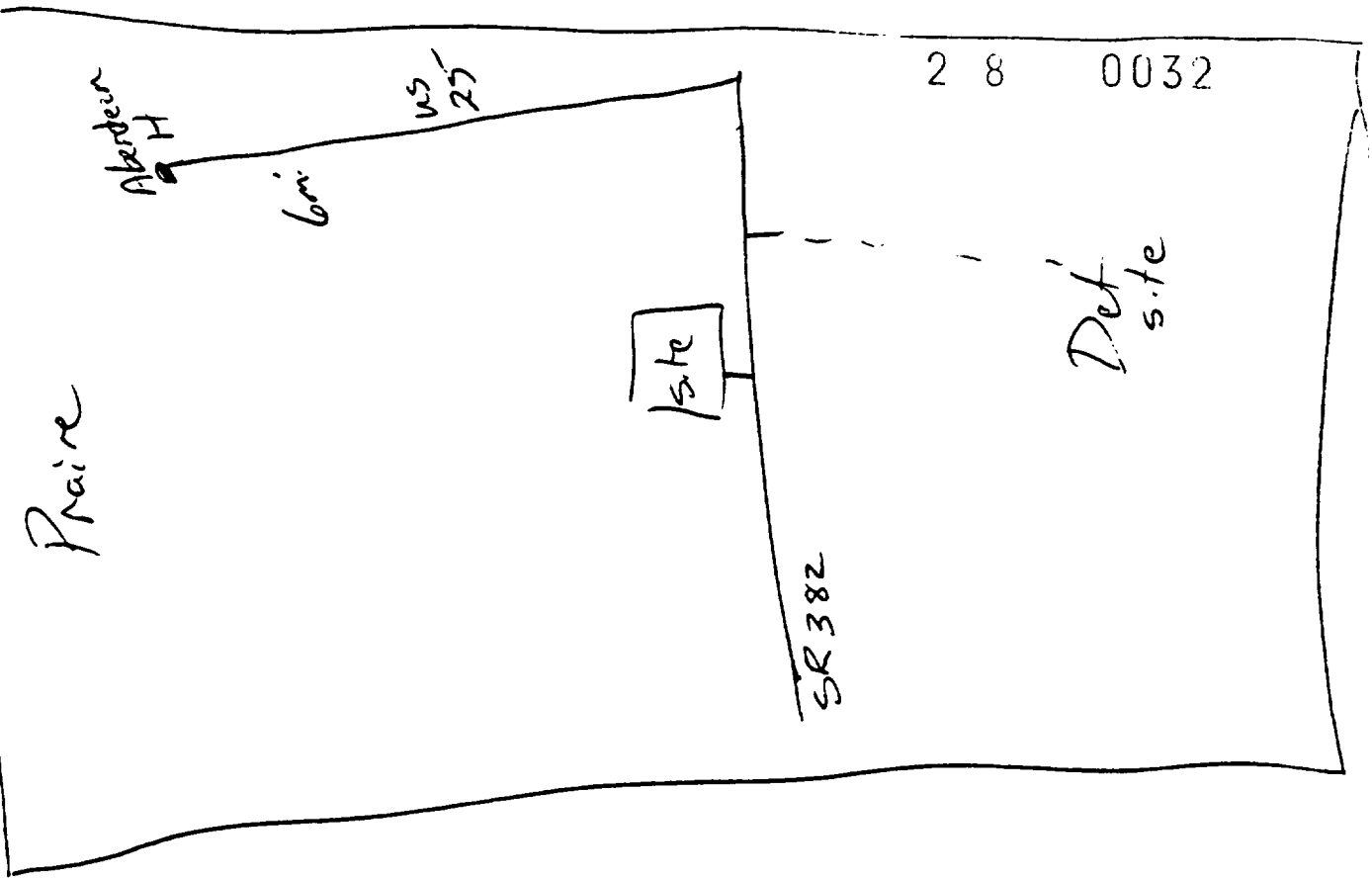
DIRECTIONS TO HOSPITAL: (ATTACH MAP) RTE. VERIFIED BY GLS DATE 5/90/90

SR 382 East to US 25. North into Abbeville
follow Hospital S. to 400 S Chestnut St.

Contingency

Either will be transported from site to detonation site in a bomb trailer. Fire dept. pumper will be part of convoy.

Citizensry will be notified and cleared by officials
 from route



TDD# 04-9005-13 PCS# 324**OBSERVED CONDITIONS/ACTIVITIES**

Describe Initial Conditions (Source/Type/Quantity):

Starkville - 3/4 of case of ether (72 cans) detonated.
Praine - 31 cases ether (2976 cans) detonated at an average
of 6 cases at a time = 5 detonations.

DOCUMENTATIONPERFORMED BY: G.L. Shaira / Bob RogersType: Photo ☒ Log Book ☒ Recorder ☐ Video ☒**PHYSICAL DESCRIPTION**Size of Site: _____ Topography flat field Weather clear, sunny

Distance to Nearest: Residence N/A School N/A Hospital 6-8 miles
 Public Building N/A Other _____

Evacuation: Yes _____ No _____ Number _____ By Whom _____
only during detonation - to at least 500 yds.
 Nearest Waterway: Tombybee River Distance: N/A

Condition	Observed	Potential	None
Surface Water Contamination	_____	_____	_____
Ground Water Contamination	_____	_____	_____
Drinking Water Contamination	_____	_____	_____
Air Contamination	_____	_____	_____
Soil Contamination	_____	_____	_____
Stressed Vegetation	_____	_____	_____
Dead Fish, Other Animals	_____	_____	_____

ACTIONS TAKEN ON SITE: (Attach Map of Site Control Zones)Was Entry Made by TAT: YES _____ NO ☒**TASK CONDUCTED:** Describe Specific PPE Used and Why

Documentation of ether detonations from
exterior of location. Documented other personnel
activities on site via radio.

None performed

S I T E N A M E

Background O₂ _____
Organics _____
Radiation _____

CGI

SITE NAME

STATION/ LOCATION	DATE	TIME	NAME OF AIR MONITOR	TYPE OF EQUIPMENT (HNU (PROBE/SPAN), OGI, OVA, RAD MIR	READING	SUMMARY/COMMENTS

28 0034

SAMPLING: CONDUCTED? YES _____ NO P

If Yes, Describe Sampling Method _____

Has Lab Been Notified of Potential Hazard Level? Yes _____ No _____ NA

Note: This Health and Safety Plan was prepared for work to be conducted under the Technical Assistance Team (TAT) Contract 68-01-7367 Zone 1. Use of this plan by WESTON and its subcontractors on the TAT contract is intended to fulfill the OSHA requirements found in 29 CFR 1910.120. Items not specifically covered in this plan are included by reference to 29 CFR 1910 and 1926.

I have read and understand this safety plan.

<u>NAME (PRINTED)</u>	<u>SIGNATURE</u>	<u>AFFILIATION</u>	<u>DATE</u>
G.L. Shara	<i>[Signature]</i>	WESTON TAT	5-14-90

Final Submission of Plan by *[Signature]* Date 5-16-90

Post Response Approval *[Signature]* Date 6/10/90

Copy to ZPMO _____ Date _____

SPER HSO Reviewed by: _____ Date: _____

Followup Required: Yes _____ No _____

Followup Performed: Date: _____ With: _____

Comments: _____

Common Synonyms		History Label	Collection	Group Label
Anesthetic ether Diethyl ether Diethyl oxide Anesthetic ether Etheroxene		Focus on water, Flammable, vapors vapor is irritating. Boiling point is 34.7°.		
Avoid contact with liquid and vapor. Keep people away from vapors and self-contained breathing apparatus. Shut off ignition sources and call fire department. Do not inhale vapors. Do not allow fire and water spray to "touch down" vapor. Vapor may irritate eyes and cause lacrimation. Vapor may be irritating to the respiratory tract. Heavy toxic health and pollution control agencies.				
Fire	FLAMMABLE. Flammable vapor and may cause fire or explosion. Vapor may ignite if exposed in an enclosed area. Vapor goggles and self-contained breathing apparatus. Emergency with dry chemical, foam, or carbon dioxide. Vapor may be irritating to the respiratory tract. Cold liquid contains with vapor.			
CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose and throat. Irritating to eyes, nose, throat, respiratory, lacrimation, or skin if exposed to vapors. Vapor may irritate eyes and cause lacrimation. Vapor may be irritating to the respiratory tract. Heavy toxic health and pollution control agencies.				
Exposure	LIQUID Irritating to skin. Irritating to eyes, nose and throat. Skin irritation caused with spray of vapor if exposed to vapors. Heavy toxic health and pollution control agencies.			
Water Pollution	Effect of low concentrations on aquatic life is unknown. May be dangerous if a strong water solution. Heavy toxic health and pollution control agencies.			
1. RESPONSE TO DISCHARGE (See Response Database (handbook)) Name: spray-type flammability Physical state Evacuate area		2. LABEL 2.1 Category: Flammable liquid 2.2 Class: 3		
3. CHEMICAL DESCRIPTIONS 3.1 CB Compound: Diethyl Ether 3.2 Formula: C ₄ H ₁₀ O 3.3 MSD/AM Description: 3.1/1116 3.4 DOT ID No.: 1154 3.5 CAS Registry No.: 60-29-7		4. DESCRIPTIVE CHARACTERISTICS 4.1 Physical State (see category): Liquid 4.2 Color: Colorless 4.3 Other: None		
5. HEALTH HAZARDS				
5.1 Personal Protective Equipment: Approved organic vapor detector mask; chemical goggles; synthetic rubber or plastic gloves.				
5.2 Symptoms: Irritating: Exposure: Vapor irritation may cause lacrimation, nose, watering, and skin of exposed surfaces. Contact with eyes and be irritating. Skin irritation from contact with the substance may cause burns.				
5.3 Treatment of Exposure: IRRITATION: Remove victim to fresh air. If breathing has stopped, apply artificial respiration. If breathing is irregular, give oxygen and a physician. EYES: Flush immediately with water for 15 min.				
5.4 Threshold Limit Value: 400 ppm				
5.5 Short Term Exposure Limit: 1000 ppm for 30 min.				
5.6 Tolerable by Inhalation: Class 2: LD ₅₀ = 0.5 to 5 g/kg				
5.7 LD ₅₀ Toxicity: None				
5.8 Vapor (Class) Irritant: Characteristics: Vapors cause a slight watering of the eyes or respiratory system if present in high concentrations. The effect is temporary.				
5.9 Liquid or Solid Irritant: Characteristics: No appreciable hazard. Physically hazardous to the skin because it is very volatile and evaporates easily.				
5.10 Other Threshold: 0.25 ppm				
5.11 GDM Value: 1000 ppm				

1. FIRE HAZARDS	16. HAZARD ASSESSMENT CODE (See Hazard Assessment Handbook) A-B-C-T-L-V-W
6.1 Flash Point: -49°F O.C.: -49°F C.C. 6.2 Flammable Limits in Air: 1.85%-36.5% 6.3 Fire Extinguishing Agents: Dry chemical, carbon dioxide or foam 6.4 Fire Extinguishing Agents that do not cause harm 6.5 Liquid Not present 6.6 Special Hazards of Combustion Products: Not present 6.7 Behavior in Fire: Vapor is heavier than air and may cause considerable damage to areas of ignition and flash back. 6.8 Characteristics: Vapor irritates eyes, nose and throat. 6.9 Ignition Temperature: 497°F 6.10 Autoignition Temperature: 497°F 6.11 Flash Point: 3.7 minutes 6.12 Autoignition Point Temperature: Data Not Available	11. HAZARD CLASSIFICATIONS 11.1 Code of Federal Regulations Flammable liquid 11.2 Most Hazard Rating for Bulk Water Temperature Category _____ Rating 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

12.17 SATURATED LIQUID DENSITY		12.18 LIQUID HEAT CAPACITY		12.19 LIQUID THERMAL CONDUCTIVITY		12.20 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit-inch per hour- square foot-F	Temperature (degrees F)	Centipoise
-110	51.170	35	.523	-80	1.141	-35	.445
-100	50.820	40	.528	-70	1.125	-30	.428
-90	50.480	45	.533	-60	1.109	-25	.412
-80	50.100	50	.538	-50	1.093	-20	.397
-70	49.740	55	.543	-40	1.077	-15	.383
-60	49.370	60	.548	-30	1.061	-10	.370
-50	49.010	65	.553	-20	1.044	-5	.358
-40	48.640	70	.558	-10	1.028	0	.346
-30	48.270	75	.563	0	1.012	5	.335
-20	47.900	80	.568	10	.996	10	.324
-10	47.530	85	.573	20	.980	15	.314
0	47.150	90	.578	30	.964	20	.305
10	46.780			40	.948	25	.296
20	46.400			50	.931	30	.287
30	46.020			60	.915	35	.279
40	45.640			70	.899	40	.271
50	45.250			80	.883	45	.264
60	44.870					50	.257
70	44.480					55	.250
80	44.090					60	.243
90	43.700					65	.237
						70	.231
						75	.226
						80	.220
						85	.215
						90	.210

12.21 SOLUBILITY IN WATER		12.22 SATURATED VAPOR PRESSURE		12.23 SATURATED VAPOR DENSITY		12.24 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
34	12.790	-70	.112	-70	.00199	0	.327
36	12.480	-60	.170	-60	.00293	25	.339
38	12.170	-50	.252	-50	.00424	50	.350
40	11.860	-40	.366	-40	.00603	75	.362
42	11.550	-30	.524	-30	.00842	100	.373
44	11.240	-20	.738	-20	.01159	125	.385
46	10.930	-10	1.023	-10	.01570	150	.396
48	10.610	0	1.398	0	.02099	175	.407
50	10.300	10	1.885	10	.02771	200	.419
52	9.992	20	2.510	20	.03613	225	.430
54	9.681	30	3.304	30	.04659	250	.441
56	9.370	40	4.302	40	.05944	275	.452
58	9.059	50	5.543	50	.07509	300	.463
60	8.748	60	7.072	60	.09397	325	.474
62	8.437	70	8.942	70	.11680	350	.484
64	8.126	80	11.210	80	.14340	375	.495
66	7.815	90	13.930	90	.17500	400	.506
68	7.503	100	17.190	100	.21200	425	.517
70	7.192	110	21.040	110	.25510	450	.527
72	6.881	120	25.590	120	.30480	475	.538
74	6.570	130	30.910	130	.36190	500	.548
76	6.259	140	37.100	140	.42710	525	.558
78	5.948					550	.569
80	5.637					575	.579
82	5.326					600	.589
84	5.015						

PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment that meet minimum health and safety standards. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct safety inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector on the purpose of being the inspection.

When there is no authorized employee representative, the OSHA Compliance Officer must consult with a representative number of employees concerning safety and health conditions in the workplace.

Complaints

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will conduct an on-site, on-call, or off-site inspection.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discrimination.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each

citation will specify a time period within which the alleged violations must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalties

The Act provides for mandatory penalties against employers of up to \$1,000 for each serious violation and for general penalties of up to \$5,000 for each non-serious violation. Penalties of up to \$1,000 per day may be imposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than \$10,000, or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Program recognizes outstanding efforts of this nature.

Such voluntary action should include focus on the identification and elimination of hazards that could cause death, injury, or illness to employees and supervisors. These are many public and private organizations that can provide information and assistance in this effort. A resource: Also, your local OSHA office can provide consultation help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation Service

Free consultative assistance, without citation or penalty, is available to employers, on request, through OSHA supported programs in most State departments of labor or health.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other appropriate regulations may be obtained from your employer or from any nearest OSHA Regional Office or the following locations.

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

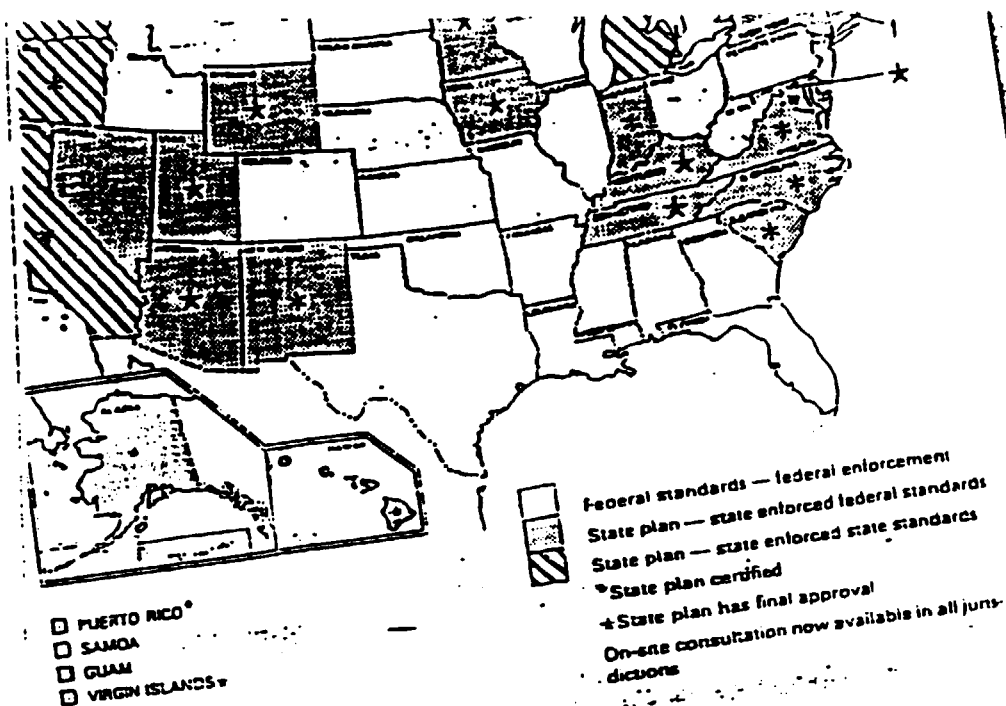
Telephone numbers for these offices, and addresses and office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.

Washington, D.C.
20545
OSHA 2203

William E. Brock
William E. Brock, Secretary of Labor
U.S. Department of Labor
Occupational Safety and Health Administration



Under provisions of Title 29, Code of Federal Regulations, Part 1903.20(a)(4) employers must post this notice for a representative in a conspicuous place where it is accessible to employees and customers present.



© 1988 The Bureau Company

Job safety and health protection

2 8 0039

Proposed Penalty:

has violated the Act a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be immediately displayed in or near the place of alleged violation for seven days, or until it is corrected, whichever is later. If more employees are dangerous this may occur there.

The Act provides for mandatory penalties against employers of up to \$1,000 for each serious violation and for optional penalties of up to \$1,000 for each nonserious violation. Penalties of up to \$1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than \$10,000 or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

Voluntary Activity:

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce injuries and illnesses arising out of employment.

The Department of Labor encourages employers and employees to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries.

Such cooperative action would initially focus on the identification and elimination of hazards that could cause death, injury or illness to employees and supervisors. There are many public and private organizations that can provide information and assistance in this effort. A REQUEST:

More

Information:

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

Telephone numbers for these offices, and additional Area Office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.

Washington, D.C.
1961
OSHA 2203



Raymond J. Donovan

Raymond J. Donovan
Secretary of Labor

U. S. Department of Labor
Occupational Safety and Health Administration

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers through the promotion of safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

Employers:

Each employer shall furnish to each of his employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to his employees; and shall comply with occupational safety and health standards issued under the Act.

Employees:

Each employee shall comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to his own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct periodic inspections to ensure compliance with the Act.

Inspection:

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint:

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or otherwise exercising their rights under the Act.

An employee who believes he has been discriminated against may file a complaint with the nearest OSHA office within 30 days of the alleged discrimination.